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NATURAL GAS FOR RURAL ALBERTANS

Alberta

TRANSPORTATION AND UTILITIES

March 1986

LOOKING FOR ANSWERS ABOUT THE RURAL GAS PROGRAM

Thank you for your interest in natural gas! We hope this booklet will answer most of your questions about natural gas, gas rates, financing and comparative costs of alternate fuels. The topics covered are as follows:

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The information in this booklet should serve as a guide to determine whether natural gas service would be a benefit to you. Some of the information may be outdated when you read this. For up-to-date information about the Rural Gas Program, please contact your local natural gas distributor, or:

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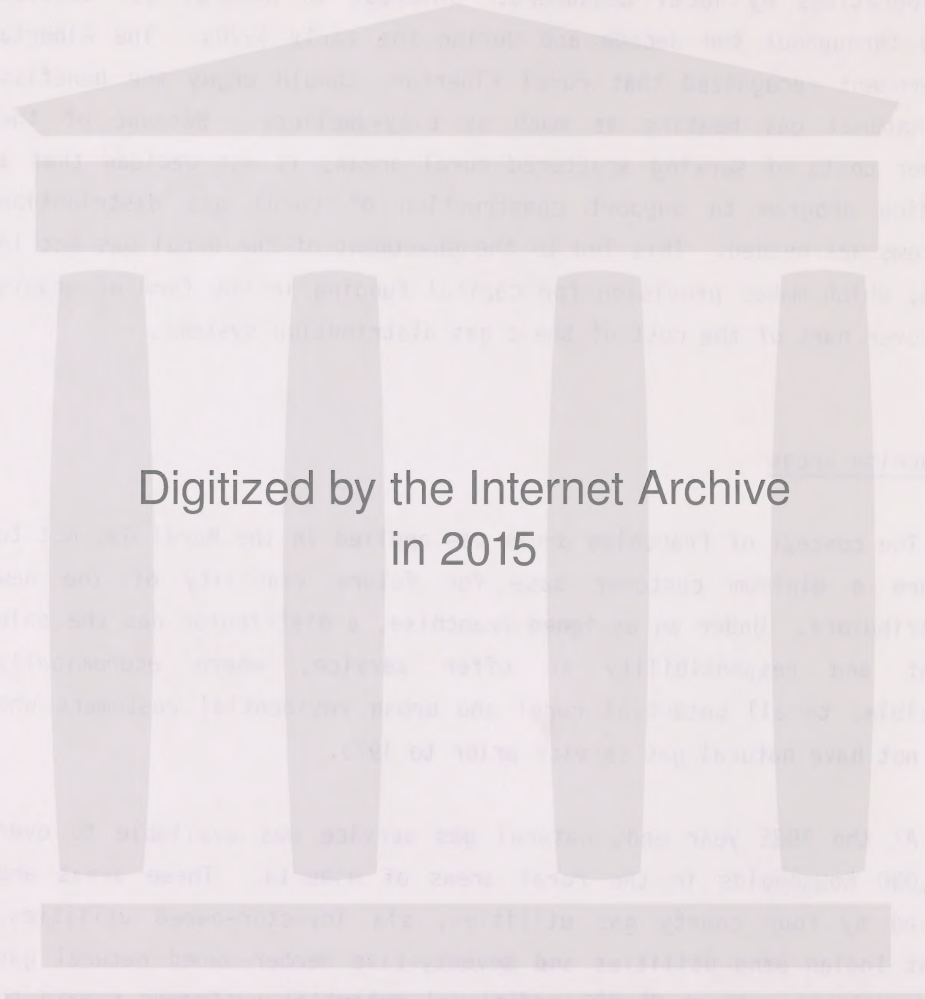
1. HOW THE RURAL GAS PROGRAM GOT STARTED

Natural gas distribution systems serving rural Alberta originated in the early 1960s with small systems built and operated as co-operatives by local consumers. Interest in natural gas service grew throughout the decade and during the early 1970s. The Alberta Government recognized that rural Albertans should enjoy the benefits of natural gas heating as much as city-dwellers. Because of the higher costs of serving scattered rural areas, it was decided that a funding program to support construction of rural gas distribution systems was needed. This led to the enactment of the Rural Gas Act in 1973, which makes provision for capital funding in the form of grants to cover part of the cost of these gas distribution systems.

Franchise Areas

The concept of franchise areas was applied in the Rural Gas Act to ensure a minimum customer base for future viability of the new distributors. Under an assigned franchise, a distributor has the sole right and responsibility to offer service, where economically feasible, to all potential rural and urban residential customers who did not have natural gas service prior to 1973.

At the 1985 year end, natural gas service was available to over 100,000 households in the rural areas of Alberta. These areas are served by four county gas utilities, six investor-owned utilities, eight Indian Band utilities and seventy-five member-owned natural gas co-operatives. About 25,000 additional potential customers remain to be served. Each of these forms of distributorship has different advantages. The decision of which one to select was left up to the local groups.



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Grant Structure

The original grant structure was based on the estimate that, averaged within franchise areas, rural services would cost no more than $3,000 per customer. Recognizing that on a per customer basis the costs of serving villages or hamlets were considerably less than those of serving farmers, urban status was granted to these communities. The costs to serve these urban areas was not expected to exceed $1,000 per customer. The government expected to contribute up to 45 percent of the overall cost of each system. Rural customers were expected to contribute a minimum of $1,700. When urban status was given, these customers were expected to pay $600 for each service.

The original estimate of per service cost proved too optimistic as inflation in the 1970s escalated the costs of building gas systems. As a result, the Rural Gas Program grant structure has been revised several times to permit greater grant assistance to keep costs down for consumers. Under the present grant structure, the cost of construction of high pressure gas transmission lines is paid totally by government grants. The remaining cost of the low pressure lines is divided between rural and urban dwellers, and is then shared between the government and the distributor as shown in the chart on page 5.

Up to the end of 1985 the Rural Gas Program grants covered about 65 percent of all construction costs incurred in building these rural gas systems. This amounted to about $317 million in grants.

Other Services

In addition to grant assistance, the Department of Utilities provides continuing operational and business assistance to rural gas distributors, including the following:

- business advisory service
- engineering, design and technical assistance
- registration of utility rights-of-way and lien notes
- training programs for managers and servicemen
- material quality control service
- acting as provincial broker to purchase gas from all suppliers and sell to rural distributors at a uniform price
- an inexpensive optional retail customer billing system.

2. HOW IS A RURAL GAS DISTRIBUTION SYSTEM PAID FOR?

The cost of adding a new rural or urban residential service to a gas system is shared between the distributor and the government. Normally, part or all of the distributor's share is assessed to the customer as a capital contribution. Any part of the distributor's share not paid directly as a capital contribution by the new customer may be borrowed and repaid through a factor in the gas rate.

AVERAGE URBAN RESIDENTIAL SERVICE COST

Financial Responsibility (Cost Sharing)

AVERAGE COST/SERVICE	DISTRIBUTOR	GOVERNMENT
Up to $ 600	100% (Up to $600)	0% (0%)
$ 600 - $1000	$600 + 0% (0%)	100% (Up to $400)
$1000 - $1500	$600 + 25% (Up to $125)	$400 + 75% (Up to $375)
$1500 - $3000	$725 + 10% (Up to $150)	$775 + 90% (Up to $1350)
Over $3000	$875 + 100% (all additional)	$2125 + 0% (maximum)

Installation costs in each distribution area are averaged. Average urban cost per service usually does NOT exceed $3,000.

AVERAGE RURAL SERVICE COST

Financial Responsibility (Cost Sharing)

AVERAGE COST/SERVICE	DISTRIBUTOR	GOVERNMENT
Up to $1700	100% (Up to $1700)	0% (0%)
$1700 - $3000	$1700 + 0% (0%)	100% (Up to $1300)
$3000 - $4500	$1700 + 25% (Up to $375)	$1300 + 75% (Up to $1125)
$4500 - $8500	$2075 + 10% (Up to $400)	$2425 + 90% (Up to $3600)
Over $8500	$2475 + 100%(all additional)	$6025 + 0% (maximum)

Installation costs in each distribution area are averaged. Average rural cost per service usually does NOT exceed $8,500.

In a member-owned co-operative, part of the capital contribution may be financed under the Co-operative Marketing Associations and Rural Utilities Guarantee Act. This Act requires a 15 percent cash down payment from the distributor. The terms of financing are usually a 10-year repayment schedule with an interest rate of bank prime plus one per cent. The setting of customer contract (sign-up) price from time to time is the distributor's responsibility.

3. FACTORS TO CONSIDER IN COMPARING HEATING COSTS

At present, the major fuels used in rural Alberta are natural gas, coal, wood, heating oil, and propane. Anyone considering a change to natural gas from any of the alternative fuels should carefully consider the following points:

- the actual cost of present fuel in use, and associated service charges or tank rentals
- the initial capital contribution for natural gas service
- the cost to convert the present heating system to natural gas
- the cost of in-yard extensions to serve other buildings

Since all the above items vary depending on where you live in the province, please ask your local fuel suppliers or gas distributors, gas fitters, and ditching contractors about their rates. You will then be able to estimate your own up-front and ongoing costs.

4. METRIC CONVERSION AND HEAT EQUIVALENTS

Both BTUs (British system) and gigajoules (metric system) are measures of how much heat you get from a litre (or a gallon) of oil or propane, a cord of wood, a ton of coal, or a cubic foot (or cubic metre) of natural gas. What's the difference between a BTU and a gigajoule? It takes approximately 950,000 BTUs to equal one (1) gigajoule (GJ) of heat value.

To get one gigajoule (GJ) or 950,000 BTUs of heat, you need to burn approximately:

- 28.3 cubic metres (1,000 cubic feet) of natural gas, or
- 39 litres (8.65 gallons) of propane, or
- 26 litres (5.94 gallons) of heating oil.

5. ANNUAL FUEL COST COMPARISON FOR ALTERNATIVE FUELS

At 1985 year end, the northern Alberta average price for these fuels, and the cost of equal amounts of heat delivered were as follows:

	PRICE FROM THE DEALER	COST FOR EQUAL HEATING (950,000 BTU or 1 GJ)
PROPANE	$0.255/litre ($1.15/gal.)	$9.95/GJ, $10.00/month tank rental
HEATING OIL	$0.38/litre ($1.72/gal.)	$9.88/GJ, storage tank must be purchased
NATURAL GAS	Northern Alberta Average	$3.18/GJ, $7.78 per month service charge

A fuel cost comparison using current average prices in northern Alberta on the next page shows what your heating costs for a year would be for propane, fuel oil, and natural gas users at different levels of consumption.

For heating oil and propane users, there is a significant cost saving on fuel bills alone if the switch is made to natural gas. However, the initial cost outlay must be carefully considered. What income could be earned if that cash were otherwise invested? If it must be borrowed, what interest payments must be met?

On the other hand, consider that interest payments will decrease annually as the unpaid balance decreases. Fuel savings alone may outweigh the investment value of the initial outlay. A farmer may also claim the capital contribution as a farm expense against his income tax, in the year in which he pays it.

ANNUAL COSTS FOR EQUIVALENT HEAT VALUE AT NORTHERN ALBERTA AVERAGE PRICES
FUEL OIL AND PROPANE COMPARED WITH NATURAL GAS

1 litre fuel oil = 36.540 BTU = 0.038 gigajoule (GJ) natural gas
1 litre propane = 24,360 BTU = 0.026 gigajoule (GJ) natural gas

FUEL OIL COMPARISON

Consumption		Annual Cost		Annual Savings
Fuel Oil (litres)	Natural Gas (GJ's)	Fuel Oil $	Natural Gas $	From Using Natural Gas
3,000	111.0	1,140.00	445.98	694.02
4,000	148.0	1,520.00	563.64	956.36
5,000	185.0	1,900.00	681.30	1,218.70
6,000	222.0	2,280.00	798.96	1,481.04
7,000	259.0	2,660.00	916.62	1,743.38
8,000	296.0	3,040.00	1,034.28	2,005.72
9,000	333.0	3,420.00	1,151.94	2,268.06
10,000	370.0	3,800.00	1,269.60	2,530.40
15,000	555.0	5,700.00	1,857.90	3,842.10
20,000	740.0	7,600.00	2,446.20	5,153.80
25,000	925.0	9,500.00	3,034.50	6,465.50
30,000	1,110.0	11,400.00	3,622.80	7,779.20
35,000	1,295.0	13,300.00	4,211.10	9,088.90

PROPANE COMPARISON

Consumption		Annual Cost		Annual Savings
Propane (litres)	Natural Gas (GJ's)	Propane $	Natural Gas $	From Using Natural Gas
3,000	76.2	885.00	335.32	549.68
4,000	101.6	1,140.00	416.09	723.91
5,000	127.0	1,395.00	496.86	898.14
6,000	152.4	1,650.00	577.63	1,072.37
7,000	177.8	1,905.00	658.40	1,246.60
8,000	203.2	2,160.00	739.18	1,402.82
9,000	228.6	2,415.00	819.95	1,595.05
10,000	254.0	2,670.00	900.72	1,769.28
15,000	381.0	3,945.00	1,304.58	2,640.42
20,000	508.0	5,220.00	1,708.44	3,511.56
25,000	635.0	6,495.00	2,112.30	4,382.70
30,000	762.0	7,770.00	2,516.16	5,253.84
35,000	889.0	9,045.00	2,920.02	6,124.98

1. Volume consumption equivalents based on Alberta Research Council heat content averages.
2. Average prices used based on March 1986 for northern Alberta.

Fuel Oil	$0.38/litre	
Propane	$0.255/litre	plus $120/year tank rental.
Natural Gas	$3.18/GJ	plus $93/year service charges.

6. HOW ARE CO-OP GAS RATES SET?

Each distributor organization sets its own gas rate. In a co-op, this is a Board of Directors' responsibility.

The gas rate charged by a rural gas distributor is made up of at least four factors. Provision must be made for:

1. the cost of the gas from the suppliers
2. costs of operating and maintaining the system
3. capital debt repayment and interest
4. Reserve or Working Capital Fund

For example, a gas rate might be made up of the following factors:

Cost of gas (Gas Alberta)	$2.081/GJ
Operation and Maintenance	0.890/GJ
Financing	0.400/GJ
Reserve Fund	0.180/GJ
TOTAL	$3.551/GJ

The total rate is usually charged to the consumer as a flat monthly service charge, and a net commodity rate. The above $3.55/GJ total rate, for example, might be charged as $7.78/month service charge plus $3.18/GJ.

7. CAN I SAVE BY USING NATURAL GAS?

Do your own calculations and see.

FUEL PRICES

Propane $_____/litre plus $_____/month tank rental
Heating Oil $_____/litre plus $_____/month tank rental
Natural Gas $_____/GJ plus $_____/month service charge

CONVERSIONS

1 litre = 0.22 gallon 1 litre propane = approximately 24,150 BTUs
1 gigajoule (GJ) = 950,000 BTUs 1 litre fuel oil = approximately 35,200 BTUs

PROPANE USERS

1. _____ litres burned/year ÷ 39 = _____ GJ of natural gas.
2. _____ litres burned/year x _____¢/litre = $_____ cost of propane yearly.
3. _____ Tank rental/month $_____ x 12 = $_____ total of tank rental per year.
4. _____ Add lines 2 and 3 = $_____ total yearly cost of propane.
5. _____ GJ (from first line) x $_____ (rate) = $_____ cost of natural gas yearly.
6. Service charge/month $_____ x 12 = $_____ total of service charge per year.
7. Add lines 5 and 6 = $_____ total year cost of natural gas.
8. Fuel cost saving (line 4 minus line 7) = $_____.

=====

HEATING OIL USERS

1. _____ litres burned/year ÷ 26 = GJ of natural gas.
2. _____ litres burned/year x $_____/litre = $_____ cost of heating oil yearly.
3. Tank rental/month $_____ x 12 = $_____ total of tank rental per year.
4. Add lines 2 and 3 = $_____ total yearly cost of heating oil.
5. _____ GJ (from first line) x $_____ (rate) = $_____ cost of natural gas yearly.
6. Service charge/month $_____ x 12 = $_____ total of service charge per year.
7. Add lines 5 and 6 = $_____ total year ly cost of natural gas.
8. Fuel cost saving (line 4 minus line 7) = $_____.

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8. ARE THERE OTHER BENEFITS FROM NATURAL GAS AS WELL AS COST SAVINGS?

Cleanliness

Natural gas is an extremely clean-burning fuel. If appliances are properly adjusted, there should be no smoke, dust, oily deposits, or odors from the use of natural gas in home heating or cooking.

Convenience

Natural gas is delivered to your residence via pipeline. As such, there are no unsightly tanks to be positioned and maintained, nor do you require the services of a trucking firm to deliver fuel. You avoid the possible problems of shortage by failure of delivery, and the inconvenience of monitoring your fuel supply and notifying the dealer of your requirements.

Safety

Non-toxic natural gas is the safest of all heating fuels.

It is delivered to your home by an underground piping system providing a continuous supply of energy on demand, which eliminates potentially hazardous storage facilities near the residence.

Piping in the residence must be installed under permit from the Plumbing and Gas Safety Services Branch. Piping is constructed to strict standards and is subject to inspection by the Branch.

Gas appliances are tested to rigid standards for safety and efficiency and are approved for use in Alberta.

An odorant is delivered with the gas so that even the smallest leak can be detected long before any dangerous accumulation occurs.

Continuous Availability

There is long-term assurance of supply since natural gas is an abundant resource in Alberta. Both the provincial and federal governments promote the use of natural gas for home heating as a viable, long-term source of energy. Various subsidization plans are in place to assist in the cost of conversion.

Think Positive

- Natural gas is clean burning.
- Natural gas requires no storage tank or delivery truck.
- Natural gas is economical and abundant in Alberta.
- Natural gas consumers benefit through the Natural Gas Price Protection Plan.
- Natural gas can provide significant savings.

Join your neighbors and share in Alberta's natural wealth and co-operative spirit!

9. WHAT ELSE SHOULD I KNOW?

Natural Gas Price Protection Plan

The Natural Gas Price Protection Plan was established in the mid-1970s to protect Albertans from national increases in the price of their own natural resource, caused largely by the demands of an international market. The plan originally absorbed 75 percent of each increase in the national price of natural gas, passing on only 25 percent of the increase to Alberta consumers. This plan was revised in 1980 to simplify its operation. Albertans now pay only 65 percent of the Alberta Border Price for their natural gas.

Remote Area Heating Allowance

An equivalent to the 35 percent saving enjoyed by users of natural gas is also available to Albertans who do not have access to that fuel. The saving is in the form of a direct rebate from the Department of Utilities for up to 18,185 litres of propane or 12,275 litres of heating oil per year.

You are not eligible for this rebate if you live within a serviced gas franchise area and by choice, prefer to use propane or heating oil when natural gas is available to you. The Alberta Government firmly believes in the economic viability of the Rural Gas Program and does not intend to support competitive programs favoring less convenient or more expensive fuels.

Rebates For Primary Agricultural Producers

Primary agricultural producers are now eligible for a further rebate of $0.50 per gigajoule on natural gas consumption. The rebate applies on consumption of gas over 300 GJ/year up to a maximum 10,000 GJ/year for each of the calendar years 1982-87. Applications should be submitted with original gas bills to the Rebates Branch of the Department of Utilities. Enquiries on this program should also be directed to the Rebates Branch.

Senior Citizens Home Heating Protection Program

Under this program, $100 is be paid to all senior citizen home owners to assist with their heating costs regardless of the type of fuel used. Eligibility is established for persons who qualify for the Alberta Property Tax Reduction Benefit, and cheques are issued automatically. No applications are required except from persons who have not received a cheque by March 31 each year. Any questions should be directed to the Rebates Branch.

Propane/Fuel Oil Tank Grants

Grants for purchasing or renting a propane or fuel oil tank are available to rural Albertans who do not have natural gas service available. Any resident not included in a rural gas distribution franchise area is automatically eligible for a grant on such costs incurred since April 1973. Residents in rural gas franchise areas are not eligible after natural gas service is made available in their immediate areas.

Grants of this type cover 40 percent of the cost of purchase or rental of a propane/fuel oil tank to a maximum of $500 grant. Receipts for costs claimed must be submitted with the application. If the claimant is inside a rural gas distribution franchise, the application must be co-signed by an authorized representative of the distributor. Any questions should be directed to the Business and Grants Section.

Other Grants Available

Senior citizens on fixed incomes may qualify for a home improvement grant through Alberta Housing. The grant may partially or wholly cover the initial outlay for conversion depending on level of income.

Similar programs of forgivable loans at low interest are available through Canadian Mortgage and Housing Corporation to low income rural dwellers for home improvement. Part of the initial outlay for natural gas service can be covered through these programs.

10. SUMMARY OF ADVANTAGES AND DISADVANTAGES OF DIFFERENT FUELS

ADVANTAGES	DISADVANTAGES
NATURAL GAS	
- About one-half the cost of heating oil or propane.	- Low price is dependent on the continuation of the Natural Gas Price Protection Plan.
- Heat content comparison: 1 GJ gas = 26 litres of oil 1 GJ gas = 39 litres of propane	- Conversion cost (excluding membership in gas co-op) is in the $2,500 range (from oil or coal).
- An abundant supply in Alberta.	
- New high-efficiency gas furnaces will sharply cut consumption.	- High efficiency furnaces are expensive (in the $3,500 range, installed).
- Can operate with very little attention.	
- In-house conversion from propane normally costs only $100 - $125.	
- Installation adds value to property.	
PROPANE	
- About 30 percent less expensive than oil.	- About twice as expensive as natural gas (39 litres propane = 1 GJ gas).
- An abundant supply in Alberta.	
- Heating units are readily portable.	- Usually requires constant attention in winter. Will not gasify in extreme cold weather unless protected or warmed.
- Can be cheaper than oil or natural gas if installation costs are included.	
- Can provide self-continuous heat in locations where gas is not available within limitations of tank capacity and refill delivery.	- Requires delivery arrangements and storage tank.
OIL	
- Can provide self-continuous heat in locations where gas is not available within limitation of tank capacity and refill delivery.	- Over twice the cost of natural gas for equivalent heating (26 litres fuel oil = 1 GJ gas).
- Heating units are reasonably portable.	- Requires delivery arrangements and storage tank.
	- Small spillages cause odor problem.

ADVANTAGES	DISADVANTAGES
WOOD	
- Wood stoves may qualify for federal off-oil grants.	- More labor intensive.
- Wood furnaces do qualify for federal off-oil grants.	- Requires large storage area.
- Provides nearly free heating if labor costs are ignored.	- Inefficient as fuel.
- Can be used as supplement to other fuel sources or heating systems.	- About twice the cost of natural gas including labor costs or if purchased.
	- Dust, dirt, and ash disposal problems.
	- Cannot be left to self-operate in winter for extended periods.
COAL	
- Cheaper if labor is not considered.	- Dust, dirt, and ash disposal problems.
- Can be used as supplement to other fuel sources or heating systems.	- Requires pick-up or high cost delivery arrangements.
	- Cannot be left to self-operate in winter for extended periods.
	- Requires storage facility.
SOLAR	
- If installed correctly and with good insulation and proper home design, can virtually eliminate heating bills.	- Inefficient in northern areas, at night, and in cloudy weather.
- Can be used to supplement existing heating systems.	- Very expensive to install.

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